

STATE OF MAINE

DEPARTMENT OF MARINE RESOURCES

IN THE MATTER OF THE APPLICATION OF)	
CHRIS A. HILL FOR AN AQUACULTURE LEASE)	FINDINGS OF FACT,
SOUTHEAST OF WOOD ISLAND, KITTERY,)	CONCLUSIONS OF LAW
YORK COUNTY, MAINE)	AND DECISION

On January 19, 2000, Chris A. Hill of York, Maine applied for an aquaculture lease totaling 5.7 acres of coastal waters of the State of Maine, located southeast of Wood Island, Kittery, York County, Maine. The applicant requested the lease for a term of ten (10) years for the purpose of cultivating the green sea urchin (*Strongylocentrotus droebachiensis*) using bottom culture techniques.

Approval of aquaculture leases is governed by 12 M.R.S.A. §6072. This statute provides that a lease may be granted by the Commissioner of the Department of Marine Resources (DMR) if it is determined that the project will not unreasonably interfere with: the ingress and egress of riparian owners, navigation, fishing or other uses of the area; the ability of the site and surrounding areas to support ecologically significant flora and fauna; or the use or enjoyment within 1,000 feet of municipally, state or federally owned beaches, parks, or docking facilities. The Commissioner must also determine that the applicant has demonstrated that there is an available source of organisms to be cultured for the lease site.

A public hearing on this application was held on January 10, 2001 at 7:00 p.m. in Kittery.

Evidence Concerning the Nature

and Impact of the Proposed Lease

Chris A. Hill (the “applicant”) provided testimony on the application and information on the proposed lease activities. Accompanying the applicant were two witnesses who testified on his behalf: Dr. Larry Harris, a professor from the University of New Hampshire in Durham, New Hampshire and Dr. Michael Russell, a professor from Villanova University in Philadelphia,

Pennsylvania. Dr. Harris is a member of the Maine Sea Urchin Zone Council, and is a recognized expert who has studied the green urchin for over 20 years. Dr. Russell has also studied urchins for many years and is an expert on sea urchin biology and population ecology. Both professors have conducted research on urchins in Maine and New Hampshire for many years. Exhibits 1 and 2.

The applicant testified that the purpose of the proposed lease would be to conduct research on the biology and population dynamics of the green sea urchin in order to develop a maintenance free model to ranch sea urchins. The applicant and his witnesses testified regarding the peak and decline of the sea urchin population, harvest and urchin biology. They explained how the harvest of the roe (spawn) negatively impacts the urchin population as this practice removes the urchin population's capacity to reproduce. They anticipate the need to conduct research for at least 3-5 years before any commercial ranching/harvest would be feasible. Research topics would include growth rates, longevity analysis, population biology (densities), determining what size urchin to rear in the lab that will survive when planted in the wild, the length of time for natural recruitment, how long before an urchin is commercially harvestable, selective harvest techniques, winter stocking and management of depleted stocks. The intent is to find a population level that does not over-take an area, deplete the local food resources, or impact on other resources, such as kelp which serves as a habitat for lobsters.

The applicant testified that the work would begin on a small scale. Wild urchins would not be stocked on the proposed lease. Broodstock used to produce hatchery-reared urchins would be obtained solely from the proposed lease site or from the Portsmouth-Kittery Harbor area. The applicant testified that he would be willing to accept this limitation on broodstock sources as a condition if a lease were granted.

Dr. Harris testified that he has conducted urchin research in a protected estuary located in New Hampshire and in an open ocean site off the Isle of Shoals. The proposed lease would

provide the combination of an exposed location that has some protection by the surrounding ledges and which is also in an area that has plenty of drift and attached seaweeds for natural feed. The proposed lease would offer protection from harvesting, which was why Dr. Harris' open ocean study area was not adequate, and would provide greater exposure than the in-shore New Hampshire site. The proposed lease site may also be viewed from the mainland, which would allow protection from poachers.

Dr. Harris testified that the results of the research on urchins would be public information. Their intent is to develop urchin fisheries management tools that would be incorporated into the management of the Maine urchin fishery. He explained that to keep the fishery viable it must maintain a market share. The research is intended to develop management practices that would help retain the fishery as well as find the methods to keep it in ecological balance with other fisheries and marine life.

The applicant and his witnesses explained that the urchin spends the first 6-8 weeks of its life cycle in a pelagic form, drifting with the currents in the water column, then requires a hard substrate upon which to settle. The bottom sediments of the proposed lease are cobblestone and shell hash with ledge along the north boundary. According to the application, the average water depth is 8 feet with deeper portions to 12 feet at low water. Local flora and fauna are the common kelps, coralline algae, rock crabs, snails and starfish. The density of urchins and lobsters was described as less than 1 per square meter in season. Depending on the tide, the current speed would average 1-3 knots.

The applicant testified that he would be willing to drop the eastern portion of the proposed lease that was covered with eelgrass. The applicant and the witnesses testified that it has not been the finding in the scientific community that sea urchins generally settle or feed upon eelgrass. Dr. Harris testified that in all his years of urchin research he had not found that urchins prefer to settle on eelgrass. The applicant and witnesses explained in detail that the proposed

activities would take place on the hard substrates away from eelgrass. Eel grass patches or sprigs on other portions of the proposed lease would not be disturbed in order to carry out the proposed lease activities.

Dr. Harris testified that they would employ monitoring of the urchin population on the proposed lease site on a monthly basis. He explained that if there were not enough food in an area for the quantity of urchins living there then the urchins would seek food elsewhere, such as bait in lobster traps. Dr. Harris testified that based on his many years of research, if urchins overpopulate an area and graze it down, the area recovers and grows back very rapidly when the urchins are removed. The number of urchins, density, size, location and the indication of cleared coralline algae would be among the conditions monitored and used to identify the optimum balance of urchins and other organisms at the proposed lease. The applicant testified that there would be no attempt to modify the existing environment to favor the urchins, as a natural setting is preferred. The applicant testified that he would be willing to accept a condition requiring monitoring, including the use of underwater photography.

The applicant testified that there would be no use of feed other than what grows or drifts onto the site with the currents. There would be no structures other than the mandatory corner markers. The applicant testified that any commercial harvest would take place only during the season as set each year in Maine regulations. Maintenance planting and monitoring would occur throughout the year.

The applicant testified that he would access the proposed lease using his 36' lobster boat. His boat is moored in New Hampshire as he is on a waiting list for a mooring in Kittery. All activities on the proposed lease would be carried out by hand using SCUBA diving or closed circuit diving techniques. The applicant requested that no dragging be allowed within the proposed lease boundaries.

The applicant testified that lobster (and crab) fishing, recreational hook and line fishing such as for striped bass, recreational SCUBA diving, kayaking, and common small boat traffic would be compatible with the proposed lease. The applicant requested that lobster fishermen who caught urchins in their traps within the proposed lease boundaries return the urchins overboard, unharmed, to the proposed lease. In general, the lobster fishing and recreational activities take place in the vicinity of the lease, as described, during the summer months, whereas most of the urchin activities would take place in the winter during the urchin harvest season. The Maine urchin harvest season is set annually by regulation.

The applicant testified that 800-pound concrete mooring blocks would be used to hold the four corner markers. He would not use chain or shackles. Instead he would use rope that could be easily replaced if it were cut off. He suggested that 16-inch white standard polyballs be used for the corner markers, but he would use a different size, color, or type of marker if it is required or allowed. In his opinion, the four polyballs would not present a hazard or additional risk to windsurfers who use the area, as there are thousands of similar polyballs used for moorings throughout the Piscataqua River area, as well as many lobster/crab trap buoys.

The applicant testified that he would be willing to accept a condition that there be no interference with the riparian land and activities on Wood Island. The Town of Kittery owns Wood Island and its development group has plans for restoring and commercially developing the Wood Island Life Saving Museum on the island.

A biologist employed by the Department testified regarding a site review he conducted on April 27, 2000. The biologist's written report from that site review included: a SCUBA diver survey of the local flora and fauna and bottom composition; vertical profiles of the water column which included temperature, salinity, dissolved oxygen and depths; proximity measurements of the proposed site to shore and to other leases; and observations and documentation of local fisheries. Exhibit 3.

The acreage of the proposed lease was reviewed based on the bearings and distances between the buoy coordinates collected from the site. The acreage was determined to be 7.12 acres instead of 5.7 acres as stated in the lease application. It was also determined that a portion of the proposed lease boundaries were positioned to cross the land of Wood Island. The biologist provided corrected geodetic coordinates that resulted in a corrected acreage of 5.64 acres and the proposed north boundary that crossed Wood Island was moved southerly. The dimensions and corner coordinates were revised in agreement with the applicant also, in order to reduce overlap with an eelgrass bed located on the eastern end of the proposed lease. The biologist testified that, based on his observations and corrected boundaries, the proposed acreage would cover a gradient of approximately 30% solid eel grass beginning on the east end, to 20% patchy eel grass, and decreasing towards the west end with very little eel grass. He stated that, according to sources other than Dr. Harris, he also found that urchins do not usually prefer to eat eelgrass. In his opinion, the applicant should be allowed to cull or harvest year round to maintain the proposed lease.

According to the biologist's report, the western side of the proposed lease contains scarce amounts of eelgrass. The bottom is composed of flat, cobble sediments with a northern boundary of ledge outcroppings. The area is in shallow waters between Wood Island and Whaleback Reef situated east of the mouth of the Piscataqua River. Local flora and fauna include an abundance of a red algae called brushy red-weed and coralline algae, eelgrass (eastern end), common starfish and a brown kelp called sea colander. Common observations were made of hermit crabs, kelp, knotted wrack, rock crabs and sea peaches, with rare observations of blue mussels, green crabs, rockweed and a sea raven. According to the biologist's report, one lobster trap was observed during the site visit. The nearest distance to land would be approximately 510' between the northwest corner to Wood Island and approximately 388' between the southwest corner to the northeastern point of Whaleback Reef.

The nearest existing aquaculture lease is located in Barter's Creek, Kittery, approximately 1.5 miles due northwest. The proposed lease is located in an area that is classified as open/approved for the harvest of shellfish according to the Department's Water Quality Program.

A member of the Kittery Town Council read a letter on behalf of the Town Council. The letter indicated concern that the proposed lease corner markers would be a hazard to wind surfers, that it would interfere with local urchin and lobster fishing and that it would interfere with the estuary northeast of Wood Island. The council member explained that the concerns stated in the Town's letter were issues raised by the Harbormaster, who later testified. She also read a letter written by the chair of the Kittery-Port Authority. The Port-Authority chair's letter expressed several concerns including: urchins hurt habitat for small lobsters and fish; would lobster fishing be allowed; gear entanglement; corrections should be made to the coordinates; U S Coast Guard compliance should be required; and responsibility for corner markers and the ability to sight the corners from the mainland. Finally, the Town Council member expressed a personal concern about the development of the proposed lease as a commercial operation and negative impacts of a lease on citizen rights. Exhibit 5.

The Harbormaster testified that the corner buoys would add to the "risk" for windsurfers because the mooring line for the corner markers would not have enough scope to the mooring block to "give" like a lobster trap buoy would. He requested that the corners not be marked or that small buoys be used. He stated that the proposed lease corners should be identifiable with line-of-sight triangulation. In his opinion, the cultivation of sea urchins on the proposed lease threatens juvenile lobsters in the local estuary. According to the Harbormaster the area north of Fort Foster is a popular collecting site for juvenile lobsters to be used for transplanting. The Harbormaster indicated that navigation of the proposed lease is limited to recreational fishers, kayakers, windsurfers and local lobster fishers who are familiar with the ledges around Wood Island and Whaleback Reef. Windsurfing is popular from nearby Fort Foster, a park located

north of Wood Island on the mainland. There are no moorings or traditional storm anchorages within the proposed lease. According to the Harbormaster, there are at least 10 lobster fishers who fish the proposed lease, and it is a popular spot with striped bass fishers in the area.

The Harbormaster also testified personally in opposition to the proposed lease. He testified that he fished this area as an urchin harvester/diver. He did not want to lose his territory, even though there have not been harvestable urchins there for the past 2 years. He expressed concern about expansion of leases if the proposed activities are successful.

A commercial fisherman and former urchin harvester testified in opposition. In his opinion, urchins hurt kelp growth and therefore the beneficial protection kelp provides for lobsters and striped bass. Urchins would eat the bait from his lobster traps and, when there are too many urchins, they would negatively impact his ability to fish lobsters. He disagreed with the testimony by the professors and the Department's biologist as, in his opinion, urchins prefer to eat eelgrass.

A commercial lobster fisher with a background in quahog aquaculture and academia testified in opposition to the proposed lease. In his opinion, the urchins would decimate the seaweeds which in turn would negatively impact the lobster population. He testified that he fishes lobster in the area of Wood Island. He fishes "triples" and stated that this is the common fishing practice in this area. He testified that during the peak lobster season (June, July and August), there would be 300-400 traps within the proposed lease boundaries. He stated that if the lease were granted then monitoring must be required, particularly to insure that the urchins do not spread to other areas.

A recreational fisher provided testimony in support of the proposed lease. In his opinion, the research would benefit the Maine and New Hampshire urchin fishery. He requested a condition that habitat be monitored to prevent degradation. He testified he fishes the proposed lease area recreationally and commonly has observed hundreds of lobster trap buoys between

the shore and the proposed corner markers. In his opinion, the four corner markers would not be a significant increase to the large number of buoys already there and therefore they would not pose an increased hazard for wind surfers.

The president of the Board of Directors of the Wood Island Preservation Group, who is also a Town Council member, provided testimony. The Town of Kittery owns Wood Island and is in the process of developing the historic site for tourism and educational purposes. He asked that there be no interference with the public development or access to Wood Island, including the cove beach area nearest the proposed lease used for access by small boats. He explained that the future access point to Wood Island would be on the north and opposite side of the island from the proposed lease. He further testified that on a calm summer day with good weather approximately 3-8 boats visit Wood Island. When the museum is established 100-150 potential summer daily visitors are anticipated. He testified that windsurfing occurs from Fort Foster and around all of the local islands and, in his opinion, the proposed lease would not pose a problem to windsurfers. Exhibit 6.

Findings of Fact

The proposed lease is located approximately 500 feet from the southern shore of Wood Island and beyond ledges that extend from the eastern end of the island. There is a beach/cove on the southeast side of the island. The Town of Kittery (riparian) intends to develop the island with a museum and historic site tourist attraction. Future access would be built on the north side of the island. The applicant testified that he did not require, nor did he request, the use of the island or beach access for the purpose of the proposed lease activities. The only gear deployed would be the required boundary markers. The applicant testified that he would be willing to accept a condition if the lease were granted that there be no interference with or access to Wood Island from the proposed lease activities. Therefore, based on the evidence, I find that the

proposed lease will not unreasonably interfere with the ingress and egress of the riparian owners with the condition that there be no access to or interference with Wood Island.

According to the evidence, the proposed lease is not located in a marked navigational channel. The lease is bounded by ledges along the northern boundary and approximately 388' south of the southeast corner is a series of ledges called Whaleback Reef. The proposed site has average depths of 8'-12'. The only gear on the site would be the required boundary marker buoys. Navigational use, according to the testimony, includes lobster fishing, recreational fishing and boating, kayaking and windsurfing, which mainly occur during the summer months. Navigation through or on the proposed lease would not be prohibited. There were conflicting opinions as to how, or if, boundary marker buoys would interfere with, or harm, a wind surfer. The Department's regulations require that the corners of the lease be marked. The type of marker buoy proposed was described as a common polyball, the same type of buoy used for mooring markers in the harbors. Based on the evidence that the proposed boundary markers are similar to the types of buoys already present in large numbers in the general vicinity used to mark traps and moorings, that no other gear will be deployed, and that navigation within the proposed lease would be allowed including windsurfing, I find that the proposed lease will not unreasonably interfere with navigation within the area.

According to the Harbormaster, the proposed lease has been harvested for urchins in the past. However there has not been a harvestable quantity or quality of urchin at this location for the past two years. According to local fishermen urchins negatively impact lobster harvests and therefore they do not want the decreased urchin population to recover or be enhanced.

The applicant, in coordination with two recognized experts, seeks a lease to research the conditions necessary to raise urchins in their natural surroundings in part due to the decline in the Maine urchin population/fishery. The applicant is willing to accept a condition to monitor the proposed lease under the guidance of the experts who testified with him.

The applicant would allow recreational hook and line fishing, recreational SCUBA diving and commercial or recreational lobster/crab fishing within the proposed lease. Most of the commercial and recreational fishing activities take place during the warmer months of the year, June, July and August. During the peak of the fishing season there may be more than 100 buoys within the proposed boundaries. The urchin harvesting activities would take place during the winter months. It was requested that there be no dragging within the proposed lease.

According to the biologist's report, the nearest lease is located approximately 1.5 miles due northwest in Barters Creek, Kittery. The proposed lease is located in an area classified as open/approved for the harvest of shellfish according to the Department's Public Health Division. Based on the evidence, including the fact that most of the commercial and recreational fishing activities take place during the opposite times of year when the lease would most actively be used, I find that the lease will not unreasonably interfere with fishing, aquaculture leases, or other uses of the area given the willingness of the applicant to conduct monitoring to insure the urchins are retained within the lease. I find that the request that urchin harvesting by others and dragging be prohibited is reasonable for the intended aquaculture purposes.

According to the Department's biologist, the applicant and the professors, the particular location of the proposed lease will provide adequate quantities of food sources from local and drift seaweeds to raise urchins. The applicant testified that no modification to the proposed lease site would be made to raise urchins there.

Concerns were expressed regarding an area of overlap of the proposed lease with an eelgrass bed due east and regarding the lease's proximity to an area north of the lease site described as a common collecting site used for transplanting juvenile lobsters and research. The applicant is willing to drop the portion of the proposed lease containing a solid eelgrass bed (~ 30% of the area) as it would not be usable. That area is approximately one-third of the eastern end at the proposed site. The applicant and his witnesses testified that patches of

eelgrass within the proposed lease (~ 20% of the area) would not be disturbed. All seeding, maintenance and harvesting would be done by hand using diving methods.

There is no Department regulation that designates a special area for juvenile lobsters, or any special license granted that permits the taking of sub-legal juvenile lobsters within the Kittery Harbor or Piscataqua River areas for purpose of transplanting as described by the Harbormaster, with which the proposed lease would interfere. Juvenile lobsters are found in other areas along the coast of Maine and are not unique to this area. Urchins are also found coast wide. Based on the above, I find that the proposed activities will not unreasonably interfere with the ability of the site and surrounding areas to support existing ecologically significant flora and fauna, given the reduction in acreage by one-third on the eastern end.

Testimony by the applicant and expert witnesses indicate that the urchin brood stock would be collected only from the Portsmouth and Kittery Harbor/Piscataqua River areas and held in a hatchery facility operated by Dr. Harris. Only local brood stock would be used to produce hatchery-reared urchins to be planted on the proposed lease. A condition would be acceptable to the applicant on the restricted source of urchin brood stock. The applicant testified that no wild urchins would be stocked. Natural settlement may occur, which would be cultivated with the hatchery-reared urchins. Based on the evidence, and the applicant's willingness to plant only hatchery reared urchins from brood stock collected only from the local Portsmouth-Kittery area, I find that there is an available source of sea urchins to be cultured on the proposed lease site. However, the applicant will be required to obtain a permit from the Department before importing any urchins into the State of Maine pursuant to Chapter 24, Importation of Live Marine Organisms.

According to the evidence and testimony, the proposed lease is located approximately 500' from municipally owned Wood Island. The applicant did not request, or require, use of Wood Island and is willing to accept a condition that there be no interference with or access to

Wood Island by the proposed lease activities. See previous finding. Therefore, based on the evidence, I find that the proposed lease will not unreasonably interfere with public use or enjoyment within 1,000 feet of any municipally, state or federally owned beaches, parks, or docking facilities.

Conclusions of Law

Based on the above findings, I conclude that:

1. The aquaculture activities proposed for this site will not unreasonably interfere with the ingress and egress of any riparian owner;
2. The aquaculture activities proposed for this site will not unreasonably interfere with navigation;
3. The aquaculture lease activities proposed for this site will not unreasonably interfere with fishing or other uses of the area, taking into consideration the number and density of aquaculture leases in the area;
4. The aquaculture lease activities proposed for this site will not unreasonably interfere with the ability of the lease site and surrounding areas to support existing ecologically significant flora and fauna;
5. The applicant has demonstrated that there is an available source of green sea urchin (*Strongylocentrotus droebachiensis*) to be cultured for the lease site; and
6. The aquaculture lease activities proposed for this site will not unreasonably interfere with public use or enjoyment within 1,000 feet of municipally, state or federally owned beaches or parks, or municipally, state or federally owned docking facilities.

The evidence in the record supports a finding that the proposed aquaculture activities meets the requirements for the granting of an aquaculture lease set forth in 12 M.R.S.A. §6072 (7-A).

Decision

Based on the foregoing, the Commissioner grants the 3.76 acres, the proposed lease being reduced by one-third (5.64 acres minus 1.88 acres), to the applicant for a period of ten (10) years from the date of this decision for the purposes of cultivating green sea urchins (*Strongylocentrotus droebachiensis*), using bottom culture techniques without the use of any type of gear or structures as described in the application and the hearing record. The applicant shall pay the State of Maine rent in the amount of \$50.00 per acre per year. The applicant shall post a bond or establish an escrow account in the amount of \$500.00 conditioned upon its performance of the obligations contained in the aquaculture lease documents and all applicable statutes and regulations.

Conditions to be Imposed on Lease

The Commissioner may establish conditions that govern the use of the lease area and impose limitations on aquaculture activities. Conditions are designed to encourage the greatest multiple, compatible uses of the lease area, while preserving the exclusive rights of the lessee to the extent necessary to carry out the purposes of the aquaculture law.

The following conditions are placed on this lease:

1. lobster and crab fishing, recreational hook and line fishing, recreational diving are allowed;
2. there shall be no access to or interference with Wood Island;
3. urchin broodstock shall be obtained from the lease or from Portsmouth-Kittery Harbor and Piscataqua River area. No urchins shall be imported into the State of Maine, however, without a permit issued by the Department pursuant to 12 M.R.S.A. §6071 and Chapter 24;
4. a monitoring program and reporting schedule shall be established with the Department prior to start up; and
5. the lease shall be marked in accordance with U.S. Coast Guard and Department of Marine Resource requirements.

The Commissioner may commence revocation procedures if he determines that substantial aquaculture has not been conducted within the preceding year or that the lease activities are substantially injurious to marine organisms. If any of the conditions or requirements imposed in this decision, in the lease, or in the law are not being observed, the Commissioner may revoke the aquaculture lease.

Dated: _____

George D. Lapointe (Commissioner)
Department of Marine Resources